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|--|--|-----------------------|---|
| 5. Build teamwork between technicians and library media specialist and aides. Identify responsibilities and establish seamless connection between in-school instructional staff and centrally based technical support staff. | Media Specialists, Principals, Technology Director, District Committee, School Improvement Teams | 2009-2012 On-going | Expanded workshops with peers Talk list Written expectations Operating Foundations |
| 6. Coordinate professional development workshops throughout the district and publish calendar. | Media Specialists, Principals, Technology Director, District Committee, School Improvement Teams | 2009-2012 On-going | Monthly meeting-representative group |
| 7. Host workshops on school sites or in district training lab for skill development in computer applications. | Media Specialists, Principals, Technology Director, District Committee, School Improvement Teams | Annually | Fall-Winter-Spring-Summer |
| 8. Pilot the use of professional development courses through PD360 and PLC. | Media Specialists, Principals, Technology Director, District Committee, School Improvement Teams | 2009-2012 | Pilot use of PD360 Expanded use of online classes |
| 9. Facilitate Information Literacy and the Net courses in each sector of the district. | Media Specialists, Principals, Technology Director, District | 2009-2012 | Communications to staff |

| | | | |
|--|---|-----------------|---|
| 10. Increase the number of programs training students to be tech helpers in the schools. | Committee, School Improvement Teams Media Specialists, Principals, Technology Director, District Committee, School Improvement Teams | 2006-2008 | Fall workshops in schools Small number of programs in place Evaluate and write guidelines Expand to more schools |
| 11. Implement guided study groups in use of online modules. | Media Specialists, Principals, Technology Director, District Committee, School Improvement Teams | 2007-2008 | Expand to all schools |
| 12. Expand teacher writing teams for online modules and lessons | Media Specialists, Principals, Technology Director, District Committee, School Improvement Teams | Expand annually | Implement in each school. |

4 Research and Implement Innovative Learning Programs using Technology.

| Activity | Who | When | Evaluation/Assessment Data Collected |
|--|---|-----------|--|
| 1. Research Ombudsman model for Alternative Education. | Principals, Technology Director, District Committee, School Improvement Teams | 2006-2007 | Feedback |
| 2. Implement the Ombudsman model for 90 students. | Principals, Technology Director, District Committee, School Improvement Teams | 2007-2008 | 37 grads in 2008. |
| 3. Research the Ombudsman model for Middle School. | Principal, Technology Director, District Committee, School Improvement Team | 2009-2010 | Feedback. |
| 4. | | | |
| 5. Pilot the Ombudsman model for Middle School. | Principal, Technology Director, District Committee, School Improvement Teams | 2011-2012 | Pilot evaluation |
| 6. Research the Not-School in England as a model for virtual learning. | Principal, | 2007-2008 | Talk list Written expectations Operating Foundations |

| | | | |
|---|-----------|--------------|---|
| 7. Pilot the Cyber High School with 180 students participating throughout Wayne County. | Principal | January 2009 | Pilot evaluation |
| 8. Expand the Cyber School model to 500 students . | Principal | 2010-2012 | Yearly assessment of program |
| 9. Continue expanding the Cyber School model. | Principal | On-going | Yearly assessment of program Expand to all schools |

Technology Delivery

Strategies of the delivery of specialized or rigorous courses and curricula through the use of technology, including distance-learning technologies

Internet, interactive video, on-line course, and/or other appropriate technologies for distance learning are presented in terms of how these technologies are currently being used to access "distance resources" or might be used in the future to enhance instruction and increase student achievement.

Strategies for the delivery of specialized or rigorous courses and curricula through the use of technology, including learning technologies

Current Status

The infrastructure (Opti-man – high band width system) for the delivery of voice, video, and data was put in place during the 2006/2007 school year. Via our wide area network (WAN), staff and/or students can communicate through email with each other and with those outside our school community, access to the Internet, view and download streaming video, participate in online courses, and transfer and share data.

Much has been spent to support the upgrading of servers across the district to permit high speed access between buildings and across the district. Virus software has been installed, and the district has implemented Internet site filtering mandated by the Children's Internet Protection Act (CIPA). Instructional staff has access to voice mail. There is direct access to the Internet from every classroom and computer in the district. Digital video is through Wayne-RESA and access to more than 2600 titles is available to all staff. Wireless networks/computers are being used in one building, and selected computer labs.

How these technologies are currently being used to access "distance resources" or might be used in the future to enhance instruction and increase student achievement.

Current Status

Many students have participated in the Michigan Virtual School (MIVS) courses over the past several years in our consortium with our two neighboring school districts. Before MIVS changed its fee structure, some AP students also enrolled to practice the AP reviews.

Research indicates that individualized instruction can be most effective when programs include:

- Assessment of student knowledge/skill level and learning style at the beginning of a program or course.

- An array of interactive materials and activities made accessible with interactive software, collaborative exercises, computer-based tutorials that provide rapid feedback, and a variety of learning resources that require students to be active in exploring and applying information.
- Individualized study plans and continuous assessment using sophisticated course-management tools so faculty and students can monitor performance and overall progress and so that faculty, rather than teaching assistants, can maintain continuous communication with individual students.
- Appropriate human interaction with experienced online instructors providing thoughtful remarks and monitoring class-wide conversations in ways that foster student-to-student interaction and reinforce student responsibility for their own learning.
- Opportunities for students to accelerate through a course. (*Twigg, C. (2001). Innovations in online learning: Moving beyond no significant difference. The Pew Learning and Technology Program.*)

The district provides subscriptions to all staff for online library resources (MEL) and United streaming video (2600 videos, 26,000 video clips and 2500 images). Students have taken virtual field trips to NASA and the Library of Congress.

Parent-District communication has been enhanced by availability of school and teacher web pages, voice mail, and email. The Districts plans to implement Parent Connect in the 2009/2010 school year. High school teachers will make students' grades available online; parents will be able to view the grades and dialog with the student or teacher about progress or achievement. The district also cablecasts information to the community.

Future Goals

Provide parent access to student grades, attendance, lunch information, etc. through the Parent Connect module in Zangle. Offer professional development to instructional staff via the desktop. The district now has scalable bandwidth up to 100Mbps to all buildings.

NEW and INNOVATIVE INITIATIVES

Westwood Ombudsman

The Westwood Ombudsman is an Alternative Education program operated by Westwood Schools in partnership with Ombudsman Education Services (OES). It is the vision of the Westwood Ombudsman program that all students have value, can learn, can develop their inherent talents, and can become contributing members of society.

The Westwood Ombudsman Mission is to serve students who are "at risk" in the typical 6-12 school environment.

The strategy of the Westwood Ombudsman program is to provide an alternative, high quality, competency-based curriculum, in a nurturing setting, using an individualized, student-centered, technology driven delivery system with a low student-teacher ratio.

Students are referred to the Westwood Ombudsman program by parents/guardians, their home school or school district, or the court system.

Applicants for enrollment, together with a parent/guardian must complete the enrollment package and interview procedures. Once accepted for enrollment, continuation in the program will be dependent on the student's commitment and the discretion of the staff. Attendance is an integral part of the program in awarding credit toward graduation. Students must continue to make reasonable and steady progress toward the completion of their individualized learning goals to remain in the program.

Westwood Cyber High School

Westwood Cyber High School is an International learning environment which utilizes the model of the Not-School Program. This model originated in the United Kingdom, and offers a customized educational experience for students who are unable to attend school for a variety of reasons. The three "Rs", rigor, relevance and relationship are infused into this student centered program. The Westwood Cyber High School offers students an opportunity to earn a High School diploma and develop the skills necessary for higher education or future employment.

The Westwood Community School district has a formal partnership with the Inclusion trust, an entity of the Ministry of Education of the U.K., and collaborates with them regularly to ensure that the research based best practices are implemented with fidelity. The Not School Program has a 98% reengagement rate, and has serviced more than 4,000 at risk and disengaged students in 8 years of documented success.

Westwood Cyber High School is a **year round** educational program available 24 hours a day seven days a week. Our program offers two learning

options for students and families. Both paths are **constructivist, project based, on-line learning experiences**. All learning experiences are individualized to meet student needs. Student progress is monitored and supported by mentors, experts, and project team leaders to ensure student success.

The school district provides the technology and connectivity in the student's home. By providing access to computers and connectivity we not only ensure that all students have access to school, regardless of socio-economic status, but also create a very rich and vibrant learning community where all students can share the 21 century learning skills they acquire.

One size does not fit all, so Westwood Cyber School offers to customizable learning venues, **My School** and **Not School**. **My School** will service students who have displayed a pattern of failure and falling behind in obtaining High School graduation credits. Students are required to participate in the virtual learning environment as well as utilize a tech center within the district a minimum of twice a week. During this time they participate in face to face meetings with experts and mentors, to ensure students remain engaged in the project based learning process and virtual environment.

Not School will service disengaged students whom for a variety of reasons cannot attend school such as: Dropped out, expelled, or who are phobic, sick, or can no longer attend school. Students participate in the same project based virtual learning environment as **My School** and do not visit the tech center on a regular basis.

The average researcher (student) to adult ratio is 1 to 4.

How It Works

Researcher: The student

Mentor: A certified teacher available online only for **Not School** Students and Online and in the Learning Lab for **My School** Students

Expert: An expert in a specific content subject area: Highly Qualified

Team Leader: The team leader will service all researchers within the community but is responsible for ensuring the success of a cohort of 60 students. If a student disengages in the process or needs additional support then the team leader will assist the researcher through a variety of established interventions including conducting home visits.

Technician: The technician is available to support researchers (students) with technical difficulties that may arise and will ensure student access to functioning hardware/software and connectivity.

Logistics Coordinator: Will assist the community with enrollment, inductions, reporting, and home visits.

The Program Currently

The Westwood Cyber High School began in February 2009, and currently has 180 full time students enrolled with an additional 140 students on a waiting list. To make this program possible the district has utilized various funding sources, the largest portion being that of our general fund dollars. However, we did receive a Models of Demonstrated Proficiency Grant from the Michigan Department Of Education and are one of eleven models currently, utilizing Title II D funding to fuel innovation. In the absence of such funding sources, it is doubtful the Westwood Cyber High School would be in existence to service at risk teens in Wayne County. This innovative program will be self sustaining through per pupil funding received through the state aide package.

This program offers a meaningful avenue of success to students who have failed to flourish in the traditional setting. This is done by incorporating, relationships, rigor and relevance into a project based international online learning environment.

"The significant problems we have can not be solved with the same level of thinking were using when we created them." Albert Einstein

Parental Communications and Community Relations


Technology has become an increasingly important tool for communication between parents and school and communication with the broader community in Westwood. District and school websites, email use, and the use of the Internet are all increasing in frequency of use and in importance. This Technology Plan will be posted on the District's web site www.westwood.k12.mi.us/techplan.doc.

One of the district challenges is to keep pace with demand in this area. We have had a number of improvements and expansions over the last nine years.

Current Status:

- A greatly improved district website.
- Every teacher has a classroom website.
- Use of email for rapid communication among parents, teachers, and administrators.
- Publishing of the schools handbooks and programs on the website – greatly reducing printing costs.
- Many teachers are making use of web posting of student products and information, and this is an area we plan on greatly expanding in the future.
- District and school calendars are electronic and posted on the website.

As we have made these changes, it has been important to communicate our



new way of doing business and to employ strategies to promote parental involvement with our online resources. These included:

Flyers announcing availability of district publications
Creation of classroom websites and a resource for parents on the website itself.
This was also initially publicized through newsletters and backpack mail and announced at Board meetings.

For our next steps we are planning:

- A survey to determine family preferences for school schedule.
- *Parent Connect in Zangle* – an online tool that will allow parents to access information regarding their students' attendance, grades, lunch room account, etc.

The district is hearing parent and community requests to expand technological communication.

Plans for the future include:

- Posting of student grades for easy parent access on the website.
- Web-publishing of community awareness materials.
- *Sip & Chat* – dialogues between Board members, staff, and community. These dialogues are held in community facilities, not in the schools.

As with all district committees, parent, teacher, administrator and community input has been sought in formulating our plans. Focus groups include parents and other community members, educators, and students. In addition, technology issues have been discussed as part of the District's Strategic Planning meetings and the feedback that will emerge from that process will be incorporated in our planning and budgeting.

Collaboration

This section refers to the district's involvement in providing learning opportunities in the area of literacy and/or technology for its adult population. The district's Department of Community Education is responsible for developing and implementing programs that meet the learning needs of the adult learners in the district. Community Education offers several basic courses in GED, as well as enrichment classes which have maintained a steady enrollment for a number of years. Community Education develops classes based on the interests of the adult community.

II. PROFESSIONAL DEVELOPMENT

WHY PROFESSIONAL DEVELOPMENT?

A thriving learning community focuses on improving learning for all of its youth and adult members. In order for staff members to create powerful learning experiences for children, they need to be engaged in the same. The Westwood Community School District Board Policy for Instructional Professional Development describes a system which promotes continuous inquiry and improvement embedded in the daily life of schools and which focuses on individual, collegial, and organizational improvement. The professional development strategies for improving learning and teaching with technology are a part of numerous district and school-based strategic plans and curriculum initiatives.

STRATEGIES FOR IMPLEMENTING TECHNOLOGY GOALS

PRODUCTIVITY:

- Increase teaching time by using management programs to streamline grades, attendance, lunch count, etc.
- Use report card programs, databases, and spreadsheets to manage student data.
- Prepare high quality teaching materials at the desktop.

COMMUNICATION:

- Use electronic mail systems to communicate within the building and throughout the district.
- Use network access to link up with other educators on specific topics through online discussion groups and professional list-serves.
- Increase communication with parents by phone and email exchanges, and by posting information on classroom and school websites.
- Collaborate with distant learning partners via online global projects and distance learning opportunities.

INFORMATION:

- Access current information to supplement teaching resources with electronic sources and online services.
- Access professional journals and information online.

ASSESSMENT:

- Evaluate individual work and class progress with reporting options available on software programs.
- Report student achievement to parents.

- Review portfolios of student work and writing saved on the network.
- Prepare written assessments of student progress with report card programs.

INSTRUCTIONAL RESOURCES:

- Use a variety of multi-media materials to more effectively differentiate instruction to reach students with diverse learning styles and needs.
- Plan individualized learning programs based on assessment data
- Increase student motivation with expanded multi-media resources for class work and assignments.
- Provide opportunities for students to work collaboratively and actively.
- Guide student use of the Internet by creating and using curriculum pages on school and district websites. Teachers or teacher teams search through numerous sites to find a few select sources which support the district curriculum and are appropriate for students. Continue to create resources for each other.
- Guide students to deeper investigations by collaborating with other teachers to create online student research projects. Teams of teachers, using the Research Cycle model which guide students through investigations using the resources of the World Wide Web, purchased online services such as ProQuest and Electric Library, and productivity software such as Word, Powerpoint, and Excel. Working in collaborative groups, students are challenged by an intriguing question which prods them to seek information, display it, process it, and produce a presentation of their solution. Teacher teams write the research modules to support the district-adopted curriculum

STAFF NEEDS ASSESSMENT

Since the outset of the technology implementation in Westwood, staff has completed many training classes. Each school has used this information to plan for staff development opportunities. Additionally, staff teams administer, observe, and evaluate the student performance assessments at all grade levels in elementary, middle, and high school. As staff members note the skills in which students need assistance, they work with their peers to enable changes in student learning experiences. It is the District's belief that Technology Integration is a major strategy required for increasing student achievement. Technology is woven into all areas and levels of the curriculum.

BUILDING A CULTURE OF CONTINUOUS STAFF LEARNING

School-based Support Strategies

The emphasis of the following strategies is to assist and facilitate staff in their integration efforts. Skill development is encouraged for its use in setting the groundwork for staff in their integration projects and activities.

School Technology Teams

- School Technology Teams work throughout the year to coordinate activities and staff development in their schools. Schools have written technology initiatives in their School Improvement Plans and update them as needed. They use yearly assessments to plan for the next school year.

Library Media Specialist-Technology Coordination Role

- The School library media specialist serves as technology coordinator at each school. She receives ongoing training and is a critical component of network and instructional support to the schools.
- Library Media Specialist, with the assistance of staff, students, and parent contributors, champion literacy programs in the schools.

Peer Experts

- Tech Committees identify in-school "experts" or "lead learners" who assist colleagues with new programs or ongoing learning.
- Library Media Specialist and Technology Committees in each school offer building level support and in-service.
- Several teachers have received grants through RESA's Mini-grant program to integrate technology into their classrooms and tie student learning to the Michigan Framework. These teachers are front runners in designing in-classroom learning activities and who will then share their learning with their colleagues in the school and across the district.

Professional Learning Communities (PLC)- Study Teams

- As part of a district-wide initiative to increase literacy and improve student learning, teachers are creating coaching teams to study student learning and their own teaching.

District-wide Support Strategies

Network Services Support

- The Technology Department supports staff learners with phone and email help.
- The Technology Department answers specific questions and designs and offers workshops on applications such as desktop management, using email, and using Microsoft Office applications.

Curriculum Committees

- Serve on curriculum committees which write curriculum and select materials.

Create Resources

- Join writing teams to create online lessons, curriculum pages online, and modules for lessons supporting the Technology Learning Standards.

Learning and Presenting

- Teachers regularly attend and present at conferences such as the annual conferences of RESA, MACUL, and other professional and curriculum-based associations.
- Staff attends and participates in intra and inter county events.

State and National Standards

- As part of the National Technology Standards published by ISTE, and the State standards (METS), district educational technology skills have been established for teachers, and administrators. The standards fall in six areas:
 - Technology operations and concepts
 - Planning and designing learning environments and experiences
 - Teaching, learning, and curriculum
 - Assessment and evaluation
 - Productivity and professional practice
 - Social, ethical, legal, and human issues
- In the future, we plan to establish a committee which will work to define standards in this area for the Westwood teaching staff.

Supporting Resources

- Teacher teams design online professional development modules designed to guide teachers through a set of explorations and understandings of Internet use in the classroom.
- The district website is a rich resource for student and staff learners. Students

and staff are both consumers and creators of curriculum resources online.

- Wayne RESA provides a rich source of products and resources for professional development.
- United Video Streaming is used.
- PD360, an online Professional Development subscription, is available to all staff.
- The Michigan Electronic Library (MEL) is available to all staff.
- U of M – Dearborn faculty are in partnership with the District and provide much support.
- Membership in MACUL and attendance at the MACUL Conference is encouraged.

TIMELINES and FUNDING FOR PROFESSIONAL DEVELOPMENT

All Schools' calendar maintain one "early release" day per month. On this day, students are released an hour early and staff engage in professional development activities. There are also several scheduled ½ day sections for staff development as well as two full days of professional development each year. Consultants from the University of Michigan – Dearborn and from the MCREL organization have been on site many times providing technology based professional development to the staff. Professional development for staff in the area of Technology and Technology Integration will continue to be a major part of the District's School Improvement Plan.

Funding for staff development has been understood by the Westwood Community School District to be critical to the successful implementation of technology throughout the District. To date the District has primarily funded staff development through District Operating Funds and Professional Development Title II funds.. Some of the training has been offered during District provided in-service time such as building-based In-service days or early release time. Some technology training has been offered in after school workshops. Ongoing district funds are used for staff development, both to cover substitute expenses and to pay teacher trainers. The Library Media Specialist is the designated technology leader in each school.

Federal Title V funds have been used to fund curriculum development, training of trainers, technology assessments, and design of staff development courses.

III. INFRASTRUCTURE, HARDWARE, TECHNICAL SUPPORT AND SOFTWARE

CURRENT STATUS and PLANS

Wiring

New and renovated facilities will be equipped with Category 5 Unshielded Twisted Pair or subsequent high-speed wire standard certified to 622 Megabits per second. Every classroom and administrative workspace will be provided with at least one drop. Fiber drops are preferred for data, voice and video services where high bandwidth applications are used. Fiber riser and backbone connections will be provided to telecommunication closets to replace copper backbone connections and enhance bandwidth. Fiber ring or star topology is the target architecture connecting remote buildings to the district central office for voice, data, and video digital communications.

Wireless

One Elementary school is Wireless. All the other facilities are waiting for available funding to become wireless. It is hoped that E-Rate funding would be available for this, but so far our funding level has not been reached. We will continue to apply.

Network Standard

ATM, FIDDI, GigaBit Ethernet or subsequent standards will be applied in the design of WAN and LAN backbone connections. The objective system will require minimum 100 Megabit per second connections to all nodes using either copper or fiber. The network infrastructure will naturally evolve to higher bandwidth standards as media and supporting equipment become proven and economically feasible. Ultimately, there will be a single, composite signal path for voice, data and video into end terminal equipment

LAN Protocols

The district will adopt ATM, IP/IPV6, ISDN, ADSL and/or other high-bandwidth, quality of service protocols as evolving standards certify them for use and common acceptance drives their price into affordable ranges. The availability of public service facilities will be closely monitored as citywide infrastructure evolves to ensure that adequate provisions are made for upgrade of the school district wide area network at minimum cost.

District Area Network

The District Area Network is fiber-based high-speed connectivity to all schools (the a.t.&t Opti-man product). As opportunities arise, the district will obtain

100Megabit or faster connections to other governmental nodes such as the public library, city government, and local colleges and universities.

Services

File Services

The district has and will continue to experience significant changes in its need for server-based resources. This is a direct result of the continuing evolution of our backbone file services and the growing demand for data services for streaming media applications, video servers, graphic servers, audio servers, and data sharing services for collaborative applications. Continuing trends toward specialization of server platforms will eventually put high-end servers in place of file services alone.

Printing Services

The district will continue to expand its current print services to keep pace with the anticipated demand for more centralized shared printers. The introduction of high-speed 100 Megabit per second laser and color-laser printers for site use will profoundly affect bandwidth requirements and accentuate the need for dedicated, switched printer segments on the various school LANs.

Other Services

The district will continue to expand the use of MS Exchange server to include integrated delivery of learning applications, such as locally developed applications, streaming audio/video and distance learning software programs.

Use of Proxy caching technology will be expanded, with redundant and specialized-media proxy servers ensuring bandwidth and processor load balancing. The district will continue to increase the functionality and inherent complexity of its World Wide Web presence using emerging, Active-X, ISAPI and ASP technologies. There will be a high demand for a robust Intranet presence with increasing WAN bandwidth in order to provide distance learning opportunities and administrative software applications, including Web-based, back-end database access for student and financial programs.

The district will provide continued maintenance of DNS services, including integration with the Microsoft TCP/IP protocol implementations. Similarly, there will be continuing use and upkeep of DHCP or evolving dynamic configuration schemes with ensuing versions of Internet Protocols.

New implementations will be required for specialized servers with ever-increasing content demands such as central library databases, security, streaming media servers, and application servers.

Remote access will evolve to higher baud rates, and may include virtual private

networks(VPN).

Windows and productivity software, such as calendars and schedulers will become integrated with voice messaging and teleconferencing applications. Industry migration toward specialized servers will require new server hardware acquisitions.

Terminal Servers and thin client workstations may emerge as a viable means to reduce hardware costs, extend the life of existing hardware and provide quality applications support to the user base. Centralizing the delivery of software applications through the use of terminal services will reduce the resource burden associated with installation and maintenance of software.

Internet Connection

The district currently utilizes a giga-bit data link to the County (Wayne RESA). This has eliminated many of the connectivity issues that restricted the effective use of the Internet as a learning resource. This result has been a proliferation of Internet browser software as a standard application for use by students and staff. Such usage increases will necessitate a continuous review of how available bandwidth is being used and what changes need to be made to accommodate the expanding use of technology in the curriculum. With the Opti-Man solution recently installed, bandwidth capabilities to each building is independent and scalable. The District has adequate capacity for additional bandwidth for Internet connectivity in order to fulfill longer-term objectives for delivery of applications and storage of data.

Clients

The district will annually upgrade approximately 25% of its 500+ client workstation inventory to meet current platform standards. These hardware upgrades and evolving minimum standards will ensure that the district keeps pace with industry standards for next generation software applications. Multimedia systems are the minimum platform for instructional use. Portable computers and notebooks are used and will become more widely used as technology matures which will in turn generate increased demand for remote access services.

Thin client systems may emerge as the district standard for desktop computing as terminal services matures and becomes more cost-effective solutions than the local deployment of software applications.

Software

The district will continue to maintain and update a standard set of contemporary software for educational, personal productivity and administrative uses. The Microsoft Office XP Professional suite is the district standard. Client software will be upgraded to keep pace with evolving Windows standards; server software will parallel this evolution. Hardware upgrades will be a continuing necessity to meet the ever increasing processor and memory requirements of more demanding

client and server software implementations. All software will be maintained at a functional revision level.

The district operates a decentralized, distributed processing, client-server model for the student record system which resides on Windows 2003 servers with some components at user's desktop. Database replication and backup services will place increased demand on WAN bandwidth and increase the memory and processing load requirements of host server platforms.

The district workstation paradigm will also continue to evolve. The desired shift will be away from a model that installs all software on a local hard drive to one that places more emphasis on server delivered applications. The emergence of Net PCs and Thin Client systems will necessitate a continuing review of software and services delivery methodologies as these technologies mature.

Telephone

The district's telephone system needs to change with the introduction of new technologies. A larger capacity, higher bandwidth central PBX will be necessary for transport of projected advanced signaling enhancements, such as ISDN based teleconferencing. More physical ports will be necessary to service fax, modem and handset needs at each site. Enhanced 911 and Caller-ID will be implemented, possibly requiring PBX upgrades at multiple sites. Telephony will continue to evolve toward potential workstation integration with voice, data, and video services, especially at administrative worksites, requiring greater bandwidth and processor/memory requirements for those systems. While immediate plans for infrastructure improvement will continue to make use of the installed base of decentralized equipment, the Voice Over IP (VOIP) technology is being sought, and again, it is hoped that E-Rate will provide the funding.

Video

Broadcast Video

Greater emphasis will be placed on digital signaling for classroom video systems. Displays will originate from digital sources in greater proportion to traditional VCR or cable television feeds. For example, educators will be able to transmit PowerPoint slides or cached Web pages into the classroom TV monitor. Teleconferencing will be deliverable to the classroom level from WAN and wide area sources, profoundly impacting bandwidth requirements, both internal to the building site and across wide area links.

Video Conferencing

Integration with streaming media applications will be utilized for WAN video teleconferencing as that technology matures. High-speed fiber telecommunications links will provide for advanced video conferencing capabilities through use of technologies such as WDM.

Electrical Capacity

The district will continue applying electrical standards to its sites to provide adequate levels of service and to afford adequate protection of equipment. Planning for new construction and existing building renovations will include provisions for a comprehensive review of electrical capacity requirements to ensure that technology enhancements are considered and included in project engineering and design. Procurement documents will specify the use of energy saving technology for workstations and peripherals.

Increased Access

There is already a significant capability for students to utilize technology at every level. Buildings are well equipped in terms of the number of fixed computer labs that are available. Increasing access will be targeted by the use of laptop computers. In particular, the ability to bring computers with wireless access directly into the classroom will allow a different dynamic to technology. At the secondary schools we have set up a laptop cart program. At the elementary level this would be done by replacing the in classroom computers in every classroom with laptop carts. Due to the dynamics of the elementary classroom, the existing student computers provide only a diffuse access, only a few students at a time, and then only for a few hours each week. Replacing them with mobile laptop carts, will actually increase the amount of access students have particularly for one to one computing for the entire class. Effective use of the laptops on this wider scale will require that all classroom areas become wireless enabled. For classes where the primary use of the computer is for writing, the use of "portable keyboard" type computers (e.g. Dream writers or Alpha Smarts) is proposed at the elementary level and at the secondary level, using either similar units or PDA's.

Interoperability

All technology purchases are coordinated through the technology support department in order to ensure interoperability of equipment and software. A software selection process that evaluates the software for curricular appropriateness as well as technical compatibility is in place. Central purchasing of technology insures that only appropriate hardware is purchased. The Technology Committee sets priorities for both hardware and software with input from level specific elementary, middle, and high school technology teams. A single workstation platform (Microsoft Windows XP) and network operating system (Windows 2003) minimizes technical support and interoperability issues. The Cyber School uses the MAC platform to be consistent with the European model. Extensive use of security built into the OS allows restrictions on loading and running software minimizing technical problems as well as making sure only approved software is loaded.

IV. FUNDING and BUDGET

The Westwood Community School District is committed to a long-term financial plan, which provides students and teachers with suitable technology to support learning, and at the same time, protects the community's investment. We understand that responding to the financial challenges presented by the need to make technology available to our students is multifaceted. This includes not only the initial purchase price of the equipment, but must also include the infrastructure to connect each school to the district and every student and staff member to the Internet. Staff training is essential, both in the use of the equipment and software, as well as instructional strategies for the integration of this technology into the curriculum. The district must meet the challenge of developing a comprehensive plan to upgrade and replace both software and hardware as required by obsolescence and growth. Replacement and upgrading are intended to insure that our staff and students have access to the current software products they need. In addition to providing for the upgrade and replacement of existing computers, the district is committed to providing student access to computers at a level of one device per every seven students. Providing the resources to accomplish this task will be a challenge and until the State of Michigan accepts the role of technology as a fundamental requirement for the provision of a basic education and thereby allocates a dedicated on-going source of revenue, funding this effort will require a multi-source approach. Westwood Community School District has used or intends to use the following sources to fund equipment purchases.

- Tech Literacy Challenge Fund Grant
- District General Fund
- E-Rate funds
- Title V funds
- Title II D
- School Renovation Grant funds- IDEA and Technology sections
- Stimulus Funds (ARRA)

The district will continue to evaluate all possible sources of financial support to fund our technology plan.

INITIAL PURCHASE

Westwood voters approved a Technology Enhancement Milage in 1994. The District used those funds to purchase and install computers, and various amounts of peripheral equipment such as printers, scanners, and digital cameras. In 2003, the District connected every classroom, office, and cafeteria to

a district-wide area network. In order to maintain and support the equipment that was purchased and the many new users, the District established a Technology department with two employees. The technology staff was provided with minimal equipment to assist them in supporting the network. This initial investment provides what we consider our baseline level of technology in the District. Our financial challenge has now become twofold: 1) maintain and support this baseline level in all the ways noted above, and 2) provide for an enhanced level of access in the form of more computers and technology throughout the District.

ON-GOING MAINTENANCE AND SUPPORT

In order to provide the financial resources required to maintain our technology base, the District has developed a continuous five (5)-year Technology Replacement Plan and life cycle for end-user computers.

In the first three years of our Replacement Plan, it is anticipated that the District will spend nearly \$ 100,000 a year to keep our equipment current and to expand the number of computers. In addition, as noted earlier in the network and telecommunications planning section of this plan, we have made significant advances in the nature of our technology infrastructure and have established a vision for future enhancement to include more fiber-optics and wireless components.

The District's technical support staff provides a range of services including equipment repair, network design, and application help desk support and data base coordination.

In addition to operating funds and grants, the District expects to utilize a future voter-authorized Bond Issue to fully fund this plan. A previous effort to pass the Bond failed.

A schedule of this replacement plan and a three-year budget is shown, 2009/2010 through 2011/2012.

Three Year Technology Budget

| Prior Years Number of Computers | New and Replacement Purchases | | | | | | | | | | | |
|---|-------------------------------|---------------|-------------------|-----------|---------------|-------------------|-----------|---------------|-------------------|-----------|---------------|-------------------|
| | 2008-2009 | | | 2009-2010 | | | 2010-2011 | | | 2011-2012 | | |
| | Retired | New Purchases | Total # Computers | Retired | New Purchases | Total # Computers | Retired | New Purchases | Total # Computers | Retired | New Purchases | Total # Computers |
| 600 | 20 | 35 | 615 | | | | | | | | | |
| | | | | 50 | 60 | 594 | | | | | | |
| | | | | | | | 50 | 90 | 634 | | | |
| | | | | | | | | | | 90 | 140 | 684 |
| | | New Purchases | Cost | | New Purchases | Cost | | New Purchases | Cost | | New Purchases | Cost |
| COMPUTERS | | 35 | \$ 21,000 | | 50 | \$30,000 | | 150 | \$90,000 | | 50 | \$30,000 |
| CYBER HIGH COMPUTERS | | 180 | \$360,000 | | 320 | \$640,000 | | 500 | \$1,000,000 | | 500 | \$1,000,000 |
| HUBS 1 for each 8 computers | | 10 | \$1000 | | 15 | \$1500 | | 16 | \$1600 | | 18 | \$1800 |
| Printers: | | | 0 | | | 0 | | | 0 | | | 0 |
| Lasers | 5 | 25 | \$10,000 | 5 | 10 | \$4,000 | 5 | 10 | \$4,000 | 5 | 10 | \$4,000 |
| Desk Jet | 10 | 0 | \$0 | 10 | | 0 | 10 | 0 | 0 | 10 | 0 | 0 |
| Peripherals (cameras, scanners, projectors, etc.) | | | \$10,000 | | | \$10,000 | | | \$10,000 | | | \$10,000 |
| Network hardware | | | \$50,000 | | | \$50,000 | | | \$50,000 | | | \$50,000 |
| Software | | | \$40,000 | | | \$40,000 | | | \$40,000 | | | \$40,000 |
| Misc non warranty repair | | | \$10,000 | | | \$10,000 | | | \$10,000 | | | \$10,000 |
| Internet Access | | | \$4,000 | | | \$4,000 | | | \$4,000 | | | \$4,000 |
| Basic Maintenance of Network | | | \$25,000 | | | \$25,000 | | | \$25,000 | | | \$25,000 |
| ComWeb Projection | | | 0 | | | 0 | | | 0 | | | \$168,000 |
| VOIP | | | 0 | | | 0 | | | \$250,700 | | | 0 |
| Wireless | | | 0 | | | 0 | | | \$148,000 | | | 0 |
| | | | 0 | | | 0 | | | 0 | | | 0 |
| Salaries and Benefits (Dir., 1 tech, 1 coops) | | | 200,000 | | | 224,000 | | | 250,880 | | | 280,985 |
| | | | 0 | | | 0 | | | 0 | | | 0 |
| Professional | | | 6,000 | | | 6,000 | | | 6,000 | | | 6,000 |

| | | | | | | | | | | | | |
|-------------------|--|--|--------------|--|--|----------------|--|--|----------------|--|--|----------------|
| Development(tech) | | | | | | | | | | | | |
| Annual Cost | | | \$377,000.00 | | | \$1,044,500.00 | | | \$1,890,180.00 | | | \$1,629,785.00 |

COST ASSUMPTIONS

| | | | | | | | |
|-----------|-------|----------------------------|--|---------------------------------|-------|--------------------------------|----|
| Computers | \$600 | MAC + per \$2000 for Cyber | | Printers | | Peripherals | |
| Software | \$200 | | | Laser | \$500 | Scanners Digital cameras, etc. | \$ |
| | | | | Desk Jet (no purchases planned) | 0 | | 2 |
| | | | | | | | 5 |
| | | | | | | | 0 |

Note: Network infrastructure, such as LAN or WAN connectivity, electrical upgrades, etc. are considered capital improvements and is not included.

V. MONITORING & EVALUATION

The Westwood Community School District regularly collects data in order to improve services and learning and teaching. Evaluation of the Technology Plan falls into three areas: technology implementation and support, use of technology to achieve learning goals, and staff competency and development. Conducting the evaluations is the responsibility of the Curriculum director and the Technology director in collaboration with the District Technology Committee and the School Improvement teams.

Technology Implementation and Support

Elements of this evaluation are included in this plan in the sections about Network and Telecommunications, and Long-term Funding. A current inventory has been entered into a ACCESS database. Each year we plan to evaluate ourselves across four domains of technology support, which include Equipment Standards, Staffing and Processes, Professional Development, and Intelligent Systems. For each of the domains, we will place ourselves in one of four categories according to the description. The four categories are emergent, islands, integrated, and exemplary. The rubrics and assessment are included in Appendix D. Also included in Appendix E is the Network Services Operating Procedures and Flow Chart which describe processes in place in the school year 2008-2009. The Technology Structure rubrics assist in creating yearly improvement goals.

Use of Technology to Achieve Technology Goals

The goal of the Technology Plan is to improve learning and teaching. The plan identifies rich information resources to the classroom to support the kinds of learning outlined in the Michigan Framework as well as the district's own School Improvement Plan.

Program assessment will begin with the annual administration of the Mankato Self-Assessment Scale to students as a measure of skill development. Performance task assessments of randomly selected groups of students will be added in the second year to gain a measure of students' ability to solve problems in teams using new technologies. During the third year of implementation, schools will emphasize Information Literacy and student investigations as they extend the use of technologies and consolidate progress. As the district explores the impact of new information technologies upon learning, there will be a concerted effort to supplement what is available over the "free Internet" with professionally developed "pay for-service" resources. These have been

welcomed by students and staff who appreciate the reliability and efficiency of such information delivery systems.

The district and schools collect assessment information on an annual basis in order to continually improve student learning opportunities. Each year students in selected grades will complete the self-assessment instrument regarding their skills with technology (Appendix B). The information is used to examine the school's program and see what needs to be improved. The performance assessment, in which groups of students work through a problem-solving task, observed and evaluated by a team of their teachers, will produce a shift toward student problem solving in the classroom.

Recently, we have started using "Plugging In", a technology planning document developed by the North Central Regional Educational Laboratory (NCREL), to provide the basis for school technology evaluation. Fundamental to the reviews is the concept of engaged learning that calls for students to be responsible for their learning, to work in teams and to solve problems and make decisions. The framework builds on work by Barbara Means of SRI International. She identified seven variables that, when present in the classroom, indicate that effective teaching and learning are occurring. These classroom variables are:

- children are engaged in authentic and multidisciplinary tasks
- assessments are based on students' performance of real tasks
- students participate in interactive modes of instruction
- students work collaboratively
- students are grouped heterogeneously
- the teacher is a facilitator in learning
- students learn through exploration

The school technology committees have used the "plugging in" model to assess their implementation of engaged learning practices in conjunction with high performance technology. They identify areas that need further attention and work and identify the most important steps they could take in the following years to meet their goals. They identify the most important resources necessary to complete their plan.

The "School Technology Goals" outlines specific activities that must be in place for students at each school. Schools will keep a matrix annually tracking when and where each activity is completed. Classroom level maintaining will be done by the principal in coordination with the Media Specialist.

Staff Competency and Professional Development

All staff members participate in many hours of staff development designed to emphasize the three main goals of our plan: communicating, analyzing data, and